

PATENT COOPERATION TREATY



Translation

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0000053231	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/000924	International filing date (day/month/year) 30 January 2003 (30.01.2003)	Priority date (day/month/year) 06 February 2002 (06.02.2002)
International Patent Classification (IPC) or national classification and IPC C07C 209/36		
Applicant BASF AKTIENGESELLSCHAFT		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 20 June 2003 (20.06.2003)	Date of completion of this report 04 February 2004 (04.02.2004)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

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International application No.

PCT/EP2003/000924

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-10, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages 1-8, filed with the letter of 13 October 2003 (13.10.2003)
- ☐ the drawings:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-8	YES
	Claims		NO
Inventive step (IS)	Claims	1-8	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims		NO

2. Citations and explanations

1. Document D4 was cited in the search report as category "P". It is assumed that the claimed priority is valid. Therefore, document D4 will not be considered for the assessment of novelty and inventive step (see EPO Gazette, 11/2001, pages 539-542, particularly point 13).

2. The newly submitted claims 1-8 are supported by the original claims and are therefore admissible.

3. Novelty

Now that the separation of the hydrogenation catalyst has been defined more precisely in the main claim (occurs **continuously**), it is possible to acknowledge novelty with respect to document D1.

Document D2 mentions the possibility of cross-flow filtration during the preparation of aromatic amines. However, neither membrane filtration nor the conditions for carrying out membrane filtration are disclosed or suggested.

Document D3 does not describe a method for preparing amines, but rather a method for producing polymers. The polymers are separated from the reaction mixture by membrane filtration. Document D3 contains no statements about the conditions for separation.

Therefore, the subject matter of the application can be considered novel.

4. Inventive Step

- 4.1. The application appears to relate to the following problem, which is addressed by the invention (see description, page 3, paragraph 3): providing an improved method for separating catalysts during the hydrogenation of nitroaromatic compounds.
- 4.2. Documents D1 to D3 are relevant to the evaluation of inventive step. D1 is considered the closest prior art, since this document also discloses a method for separating catalysts during the hydrogenation of nitroaromatic compounds.
- 4.3. On the basis of the examples and the comparative examples, it is plausible that the problem defined above has been solved by the technical measures of the method contained in claim 1.
- 4.4. The solution to this problem according to claim 1 is considered surprising with respect to prior art documents D1 to D3.

Based on the teaching of D1 in combination with the teaching of D2 and D3, a person skilled in the art would not expect that it would be possible to achieve

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the complete separation of the catalyst by
integrating a continuous separation of the catalysts
into the continuous reaction portion by means of
membrane filtration.

The subject matter of claims 1-8 thus involves an
inventive step.